

WHAT IS CLAIMED IS:

1. A method for controlling a storage device system, the storage device system including

an information processing device,

5 a first storage device equipped with a first storage volume, and
a second storage device equipped with a second storage volume,
wherein the information processing device and the first storage device are communicatively connected to one another,

the first storage device and the second storage device are
10 communicatively connected to one another,

the information processing device is equipped with a first write request section that requests to write data in the first storage device according to a first communications protocol, and

the first storage device is equipped with a second write request
15 section that requests to write data in the second storage device according to a second communications protocol,

the method comprising:

a step conducted by the information processing device of creating first data including a first instruction to be executed in the second storage
20 device;

a step conducted by the information processing device of transmitting to the first write request section a request to write the first data in the first storage volume according to the first communications protocol;

a step conducted by the first storage device of, when the first data written in the first storage volume is an instruction to the second storage device, transmitting to the second write request section a request to write the first data in the second storage volume according to the second

5 communications protocol; and

a step conducted by the second storage device of executing the first instruction set in the first data written in the second storage volume.

2. A method for controlling a storage device system according to
10 claim 1, further comprising:

a step conducted by the information processing device of creating second data including a second instruction to be executed by the first storage device;

a step conducted by the information processing device of
15 transmitting to the first write request section a request to write the second data in the first storage volume according to the first communications protocol; and

a step conducted by the first storage device of, when the second data written in the first storage volume is an instruction to the first storage
20 device, executing the second instruction.

3. A method for controlling a storage device system according to claim 1, wherein the first storage device includes a third storage volume, the second storage device includes a fourth storage volume, and the second

storage device includes a read request section that requests the first storage device to read data according to a third communications protocol, the method comprising:

5 a step conducted by the information processing device of creating the first data including as the first instruction a pair forming instruction to form a pair of the third storage volume as being a primary storage volume and the fourth storage volume as being an auxiliary storage volume; and

10 a step conducted by the second storage device of receiving the pair forming instruction set in the first data written in the second storage volume, and transmitting to the read request section a request to read data in the third storage volume and write the data into the fourth storage volume according to the third communications protocol.

15 4. A method for controlling a storage device system according to claim 1, wherein the first storage includes a third storage volume, and the second storage device includes a fourth storage volume and a sixth storage volume, the method comprising:

20 a step conducted by the information processing device of creating the first data including as the first instruction a pair forming instruction to form a pair of the third storage volume as being an auxiliary storage volume and the fourth storage volume as being a primary storage volume; and

a step conducted by the second storage device of receiving the pair

forming instruction set in the first data written in the second storage volume, and storing in the sixth storage volume a copy of data to be written in the fourth storage volume and positional information of the data as a journal.

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5. A method for controlling a storage device system according to claim 3, wherein the first storage device includes a fifth storage volume, and the second storage device includes a sixth storage volume, wherein a pair is formed with the third storage volume as being a primary storage volume and the fourth storage volume as being an auxiliary storage volume, and a copy of data to be written in the third storage volume and positional information of the data are stored in the fifth storage volume as a journal, the method comprising:

a step conducted by the information processing device of creating the first data including as the first instruction a journal acquisition instruction to store a copy of the journal into the sixth storage volume; and

a step conducted by the second storage device of receiving the journal acquisition instruction set in the first data written in the second storage volume, and transmitting to the read request section a request to read data in the fifth storage volume and write the data into the sixth storage volume according to the third communications protocol.

6. A method for controlling a storage device system according to claim 5, comprising:

a step conducted by the information processing device of creating the first data including as the first instruction a restoration instruction to update the fourth storage volume using a journal stored in the sixth storage volume; and

5 a step conducted by the second storage device of receiving the restoration instruction set in the first data written in the second storage volume, and writing data stored in the journal written in the sixth storage volume into the fourth storage volume.

10 7. A method for controlling a storage device system according to claim 4, comprising a step conducted by the second storage device of storing pair management information indicating that the pair is formed with the third storage volume as being an auxiliary storage volume and the fourth storage volume as being a primary storage volume.

15 8. A method for controlling a storage device system according to claim 7, comprising:

a step conducted by the information processing device of creating the first data including as the first instruction a pair swap instruction to
20 swap the pair such that the third storage volume is set as a primary storage volume and the fourth storage volume is set as an auxiliary storage volume;

a step conducted by the second storage device of receiving the pair swap instruction set in the first data written in the second storage volume,

and storing in the pair management information data indicating that the third storage volume is the primary storage volume and the fourth storage volume is the auxiliary storage volume; and

a step conducted by the second storage device of receiving the pair swap instruction, and stopping the step of storing in the sixth storage volume history of data written in the fourth storage volume as a journal.

9. A storage device system comprising:

an information processing device;

10 a first storage device equipped with a first storage volume; and

a second storage device equipped with a second storage volume;

wherein the information processing device and the first storage device are communicatively connected to one another,

the first storage device and the second storage device are

15 communicatively connected to one another,

the information processing device is equipped with a first write request section that requests to write data in the first storage device according to a first communications protocol,

the first storage device is equipped with a second write request section that requests to write data in the second storage device according to a second communications protocol,

the information processing device is equipped with an instruction setting section that creates first data including a first instruction to be executed in the second storage device, and an instruction transmission

section that transmits to the first write request section a request to write the first data in the first storage volume according to the first communications protocol,

the first storage device is equipped with a data transfer section that,
5 when the first data written in the first storage volume is an instruction to the second storage device, transmits to the second write request section a request to write the first data in the second storage volume according to the second communications protocol, and

the second storage device is equipped with an instruction execution
10 section that executes the first instruction set in the first data written in the second storage volume.

10. A storage device system according to claim 9, wherein
the information processing device is equipped with the instruction
15 setting section that creates second data including a second instruction to be executed by the first storage device,

the information processing device is equipped with the instruction
transmission section that transmits to the first write request section a
request to write the second data in the first storage volume according to
20 the first communications protocol, and

the first storage device is equipped with a first instruction execution
section that, when the second data written in the first storage volume is
an instruction to the first storage device, executes the second instruction.

11. A storage device system according to claim 9, wherein
the first storage device is equipped with a third storage volume,
the second storage device is equipped with a fourth storage volume,
the second storage device is equipped with a read request section
5 that requests the first storage device to read data according to a third
communications protocol,
the information processing device is equipped with the instruction
setting section that creates the first data including as the first instruction
a pair forming instruction to form a pair of the third storage volume as
10 being a primary storage volume and the fourth storage volume as being an
auxiliary storage volume, and
the second storage device is equipped with a copy forming section
that receives the pair forming instruction set in the first data written in
the second storage volume, and transmits to the read request section a
15 request to read data in the third storage volume and write the data into
the fourth storage volume according to the third communications protocol.

12. A storage device system according to claim 9, wherein
the first storage is equipped with a third storage volume,
20 the second storage device is equipped with a fourth storage volume
and a sixth storage volume,

the information processing device is equipped with the instruction
setting section that creates the first data including as the first instruction
a pair forming instruction to form a pair of the third storage volume as

being an auxiliary storage volume and the fourth storage volume as being a primary storage volume, and

the second storage device is equipped with a journal storage section that receives the pair forming instruction set in the first data written in the second storage volume, and stores in the sixth storage volume a copy of data written in the fourth storage volume and positional information of the data as a journal.

13. A storage device system according to claim 11, wherein the first storage device is equipped with a fifth storage volume, the second storage device is equipped with a sixth storage volume, wherein a pair is formed with the third storage volume as being a primary storage volume and the fourth storage volume as being an auxiliary storage volume, and a copy of data to be written in the third storage volume and positional information of the data are stored in the fifth storage volume as a journal,

the information processing device is equipped with the instruction setting section that creates the first data including as the first instruction a journal acquisition instruction to store a copy of the journal into the sixth storage volume, and

the second instruction execution section is equipped with a journal acquisition section that receives the journal acquisition instruction set in the first data written in the second storage volume, and transmits to the read request section a request to read data in the fifth storage volume and

write the data into the sixth storage volume according to the third communications protocol.

14. A storage device system according to claim 13, wherein
5 the information processing device is equipped with the instruction setting section that creates the first data including as the first instruction a restoration instruction to update the fourth storage volume using a journal stored in the sixth storage volume, and
the second instruction execution section is equipped with a
10 restoration section that receives the restoration instruction set in the first data written in the second storage volume, and writes data stored in the journal written in the sixth storage volume into the fourth storage volume.

15. A storage device system according to claim 12, wherein
15 the second storage device is equipped with a pair management section that stores pair management information indicating that the pair is formed with the third storage volume as being an auxiliary storage volume and the fourth storage volume as being a primary storage volume.

20 16. A storage device system according to claim 15, wherein
the information processing device is equipped with the instruction setting section that creates the first data including as the first instruction a pair swap instruction to swap the pair such that the third storage volume is set as a primary storage volume and the fourth storage volume

is set as an auxiliary storage volume,

the second instruction execution section is equipped with the pair management section that receives the pair swap instruction set in the first data written in the second storage volume, and stores in the pair

5 management information data indicating that the third storage volume is the primary storage volume and the fourth storage volume is the auxiliary storage volume, and

the second storage device is equipped with a journal stop section that receives the pair swap instruction, and stops a processing to store in
10 the sixth storage volume history of data written in the fourth storage volume as a journal.

17. A storage device comprising:

at least first and second storage devices communicatively connected
15 to each other;

a first storage volume in the first storage device;

a second write request section in the first storage device that requests the second storage device to write data in the second storage device according to a second communications protocol; and

20 a data transfer section in the first storage device that, when first data written in the first storage volume is an instruction to the second storage device, transmits to the second write request section a request to write the first data in a second storage volume of the second storage device according to the second communications protocol.

18. A storage device according to claim 17, wherein
the second storage device comprises a second storage volume, and a
second instruction execution section that executes the first instruction set
5 in the first data written in the second storage volume.

19. A storage device according to claim 18, wherein
the second storage device comprises
a fourth storage volume,
10 a read request section that requests the first storage device to read
data according to a third communications protocol,
a pair management section that, when the first instruction is an
instruction to form a pair with a third storage volume of the first storage
device as being a primary storage volume and the fourth storage volume
15 as being an auxiliary storage volume, stores pair management information
indicating that the pair is formed with the third storage volume as being a
primary storage volume and the fourth storage volume as being an
auxiliary storage volume, and
a copy forming section that transmits to the read request section a
20 request to read data in the third storage volume and write the data into
the fourth storage volume according to the third communications protocol.

20. A storage device according to claim 18, wherein the second
storage device comprises

a sixth storage volume, wherein the pair management section that,
when the first instruction is an instruction to form a pair with the third
storage volume of the first storage device as being an auxiliary storage
volume and the fourth storage volume as being a primary storage volume,
5 stores pair management information indicating that the pair is formed
with the third storage volume as being the auxiliary storage volume and
the fourth storage volume as being the primary storage volume, and
a journal storage section stores in the sixth storage volume a copy of
data written in the fourth storage volume and positional information of
10 the data as a journal.

21. A storage device according to claim 20, wherein, when the
pair is formed with the third storage volume as being the auxiliary storage
volume and the fourth storage volume as being the primary storage
15 volume, and when the first instruction is a pair swap instruction to swap
the pair such that the third storage volume is set as a primary storage
volume and the fourth storage volume is set as an auxiliary storage
volume, the pair management section stores in the pair management
information data indicating that the third storage volume is the primary
20 storage volume and the fourth storage volume is the auxiliary storage
volume, and the second storage device is equipped with a journal stop
section that stops a processing to store in the sixth storage volume history
of data written in the fourth storage volume as a journal.

22. A method for controlling a storage device system, the storage device system including

an information processing device,

a first storage device equipped with a first storage volume, and

5 a second storage device equipped with a second storage volume,

wherein the information processing device is equipped with a first write request section that requests to write data in the first storage device according to a first communications protocol, and

the first storage device is equipped with a second write request
10 section that requests to write data in the second storage device according to a second communications protocol,

the method comprising:

a step of creating first data including a first instruction to be executed by the second storage device;

15 a step of transmitting to the first write request section a request to write the first data in the first storage volume according to the first communications protocol;

a step of, when the first data written in the first storage volume is an instruction to the second storage device, transmitting to the second
20 write request section a request to write the first data in the second storage volume according to the second communications protocol; and

a step of executing the first instruction set in the first data written in the second storage volume.

23. A method for controlling a storage device system according to claim 22, further comprising:

a step of creating second data including a second instruction to be executed by the first storage device;

5 a step of transmitting to the first write request section a request to write the second data in the first storage volume according to the first communications protocol; and

a step of, when the second data written in the first storage volume is an instruction to the first storage device, executing the second

10 instruction.

24. A method for controlling a storage device system according to claim 22, wherein the first storage device includes a third storage volume,

15 the second storage device includes a fourth storage volume, and the second storage device includes a read request section that requests the first storage device to read data according to a third communications protocol, the method comprising:

a step of creating the first data including as the first instruction a pair forming instruction to form a pair of the third storage volume as
20 being a primary storage volume and the fourth storage volume as being an auxiliary storage volume; and

a step of receiving the pair forming instruction set in the first data written in the second storage volume, and transmitting to the read request
25 section of the second storage device a request to read data from the third

storage volume and write the data in the fourth storage volume according to the third communications protocol.

25. A method for controlling a storage device system according to claim 22, wherein the first storage includes a third storage volume, and the second storage device includes a fourth storage volume and a sixth storage volume, the method comprising:

a step of creating the first data including as the first instruction a pair forming instruction to form a pair of the third storage volume as being an auxiliary storage volume and the fourth storage volume as being a primary storage volume; and

a step of receiving the pair forming instruction set in the first data written in the second storage volume, and storing in the sixth storage volume a copy of data to be written in the fourth storage volume and positional information of the data as a journal.

26. A method for controlling a storage device system according to claim 24, wherein the first storage device includes a fifth storage volume, and the second storage device includes a sixth storage volume, wherein a pair is formed with the third storage volume as being a primary storage volume and the fourth storage volume as being an auxiliary storage volume, and a copy of data to be written in the third storage volume and positional information of the data are stored in the fifth storage volume as a journal, the method comprising:

a step of creating the first data including as the first instruction a journal acquisition instruction to store a copy of the journal into the sixth storage volume; and

a step of receiving the journal acquisition instruction set in the first data written in the second storage volume, and transmitting to the read request section of the second storage device a request to read data in the fifth storage volume and write the data in the sixth storage volume according to the third communications protocol.

10 27. A method for controlling a storage device system according to claim 26, comprising:

a step of creating the first data including as the first instruction a restoration instruction to update the fourth storage volume using a journal stored in the sixth storage volume; and

15 a step of receiving the restoration instruction set in the first data written in the second storage volume, and writing data stored in the journal written in the sixth storage volume into the fourth storage volume.

28. A method for controlling a storage device system according to claim 25, comprising a step of storing pair management information indicating that the pair is formed with the third storage volume as being an auxiliary storage volume and the fourth storage volume as being a primary storage volume.

29. A method for controlling a storage device system according to claim 28, comprising:

a step of creating the first data including as the first instruction a pair swap instruction to swap the pair such that the third storage volume is set as a primary storage volume and the fourth storage volume is set as an auxiliary storage volume;

a step of receiving the pair swap instruction set in the first data written in the second storage volume, and storing in the pair management information data indicating that the third storage volume is the primary storage volume and the fourth storage volume is the auxiliary storage volume; and

a step of receiving the pair swap instruction, and stopping the step of storing in the sixth storage volume history of data written in the fourth storage volume as a journal.

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